

FORT BEND COUNTY

SECTION 11 - SPECIFICATIONS

**A. REINFORCE CONCRETE PIPE
(MINIMUM SIZE EIGHTEEN INCH (18") INSIDE DIAMETER)**

- 1. Materials, manufacture and design of reinforced concrete pipe shall conform to ASTM C76, Class III, for circular pipe, ASTM C506 for arch pipe or ASTM C507 for elliptical pipe.
 - a. Pipe shall be subject to rejection for failure to conform to any of the specification requirements. Individual sections of pipe may be rejected because of any of the following:
 - (1) Fractures or cracks.
 - (2) Defects that indicate imperfect proportioning, mixing, and molding.
 - (3) Surface defects indicating honeycombed or open texture.
 - (4) Damaged ends, when such damage would prevent making a satisfactory joint.
- 2. Used pipe may be used providing it is in good condition and does not contain any of the defects listed above and is inspected and approved for use by the County Engineer or Road and Bridge Department.
- 3. Multiple installation of CMP shall be laid with the centerlines of individual barrel parallel with the following clear distances between outer surfaces of adjacent pipes:

Diameter	18"	24"	30"	36"	42"	48"	54"	60"
Clear distance between pipe	9"	11"	13"	15"	17"	19"	23"	24"

- 4. The minimum cover measured from the top of the pipe to finish driveway surface shall be 12".

**B. CORRUGATED POLYETHYLENE PIPE
(MINIMUM SIZE EIGHTEEN INCH (18") INSIDE DIAMETER)**

- 1. Materials, manufacture, and design of high density polyethylene pipe shall conform to:
 - a. ASTM F405, Standards Specifications for Corrugated Polyethylene Pipe and Fittings.
 - b. ASTM F667, Standards Specifications for Large Diameter Corrugated Polyethylene Pipe and Fittings.
 - c. AASHTO M252, Standards Specifications for Polyethylene Corrugated Drainage Pipe.
 - d. AASHTO M294, Standards Specifications for Corrugated Polyethylene Pipe, 12" to 18" diameter.
 - e. ASTM D2321, Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity Flow Applications.

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2. Bituminous coated CMP
The inside of the pipe shall receive a smooth lining consisting of additional bituminous material applied to the full inner circumference to form a smooth inside lining, with thickness of one-eighth of an inch above the crest of the corrugations.
3. Multiple installation of CMP shall be laid with the centerlines of individual barrel parallel with the following clear distances between outer surfaces of adjacent pipes:

Diameter	18"	24"	30"	36"	42"	48"	54"	60"
Clear distance between pipe	14"	17"	20"	23"	26"	29"	34"	38"

4. The minimum required cover measure between the top surface of the pipe and the inished driveway grade shall be 15".

C. CORRUGATED STEEL PIPE (CMP) (MINIMUM SIZE EIGHTEEN INCH (18") INSIDE DIAMETER)

1. Corrugated steel pipe with 2-2/3" x 1/2" corrugations meeting the requirements of AASHTO designation M-218 of the latest issue and be a minimum of 16 gauge. Heavier gauge may be required depending on backfill, depth, loading etc.
2. Corrugated aluminized steel with 2- 2/3"x1/2" corrugations meeting the requirements of AASHTO designation M-274 of the latest issue and be a minimum of 16 gauge. Heavier gauge may be required depending on backfill depth, loading, etc.
3. Galvanized or aluminized steel pipe shall conform to the requirements of ASHTO M-36.
4. All pipe shall be annular corrugated or have annular corrugations on end of pipe to permit banding at joints.
5. Annularly corrugated pipe seams shall be riveted. **Spiral pipe shall not be permitted.**
6. Bituminous coated CMP
The inside of the pipe shall receive a smooth lining consisting of additional bituminous material applied to the full inner circumference to form a smooth inside lining, with thickness of one-eighth of an inch above the crest of the corrugations.
7. Multiple installation of CMP shall be laid with the centerlines of individual barrel parallel with the following clear distances between outer surfaces of adjacent pipes.

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Diameter	18"	24"	30"	36"	42"	48"	54"	60"
Clear distance between pipe	14"	17"	20"	23"	26"	29"	34"	38"

8. The minimum required cover measure between the top surface of the pipe and the finished driveway grade shall be 15".

D. CEMENT STABILIZED SAND

1. Cement stabilized backfill shall contain aggregate, water and a minimum of seven (7) percent Portland cement based on the dry mass of the aggregate, (1.5 sack of Portland cement per ton of mixture placed) in accordance with Test Method Tex-120-E. Cement stabilized backfill shall be placed in a manner that will completely fill all voids in the trench. Should compaction be required to fill all voids, hand operated tampers may be used.

E. INSTALLATION

1. All driveway construction including culvert and drainage structures shall comply with the above materials specification and Fort Bend County Standard Details.
2. Fort Bend County will provide only crushed concrete or (approved equal) surface. All other surfaces, concrete asphalt, etc., must be provided and installed by the applicant.
3. Decorative features such as brick pavers, stones headwalls or colored concrete will not be maintained by the County. If repairs work at a driveway or culvert is required the County shall not be responsible to replace or repair such items.

F. CONCRETE DRIVEWAYS OVER CULVERTS

1. Concrete driveways are not allowed to extend into the County Right of Way except as noted below:
 - a. In subdivision that were platted and approved by Commissioners Court prior to approval of these regulations.
2. Control joints shall be placed at twelve (12) inches on each side of the culvert to permit future rework of culvert and or ditch grades. (18" + ½ diameter of pipe on each side of centerline).

G. EXPANSION JOINT FILLER

1. Use preformed expansion joint filler conforming to the requirements of AASHTO M-33 or M-213.
2. Install expansion joint filler at locations and spacing shown on the detail sheets and/or as specified herein.

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3. Install pre-molded expansion joint filler three-fourth (3/4) inch thick around all appurtenances such as inlets, manholes, utility poles, etc. that fall within the limits of concrete pavement.
4. Install pre-molded expansion joint filler three-fourth (3/4) inch between concrete pavement or sidewalks and any other fixed structure such as intersecting walks, curbs and pavement.
5. Install pre-molded expansion joint filler to the full depth of concrete.